CLAIMS

What is claimed is:

1. An automated call routing system that routes a telephone call by responding to a routing objective of a calling party, comprising:

a speech recognizer that determines at least one phrase from a speech utterance made by the calling party and outputs a digital phrase;

a topic identifier that receives the digital phrase and converts the digital phrase to at least one of a word stem and a word class and generates a topic output; and

a maximum benefit router that receives the topic output and determines where to route the telephone call in order to optimize at least one predetermined parameter.

2. The automated call routing system of claim 1, wherein the maximum benefit router separates the routing objective of the calling party according to call topics.

3. The automated call routing system of claim 1, wherein the maximum benefit router separates the routing objective of the calling party from a second routing objective of a call center.

4. The automated call routing system of claim 1, wherein the at least one predetermined parameter is selected from an m x n benefit matrix having m routing destinations and n caller topics.

5. The automated call routing system of claim 1, further comprising a benefit matrix as input to the maximum benefit router, said benefit matrix having at least one routing destination and at least one caller topic.

6. The automated call routing system of claim 1, wherein the topic identifier generates a topic likelihood vector that is input to the maximum benefit router.

7. The automated call routing system of claim 4, wherein entries in the benefit matrix define the benefit in seconds of agent time saved by routing the call to a first destination based upon a first caller topic.

8. The automated call routing system of claim 1, wherein the maximum benefit router routes the telephone call to a first call center based upon at least one of optimized time savings, optimized cost savings, optimized response quality and optimized resources.

9. The automated call routing system of claim 1, wherein the maximum benefit router optimizes at least one predetermined parameter using Bayesian decision theory and determining minimum overall risk.

10. The automated call routing system of claim 9, wherein the minimum overall risk is the maximum benefit.

11. The automated call routing system of claim 1, wherein the speech recognizer is a spoken language understanding device.

12. The automated call routing system of claim 1, the topic identifier further comprising a stemming algorithm.

13. The automated call routing system of claim 12, wherein the stemming algorithm is Porter Stemming.

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14. An automated call routing system that routes a call by responding to a routing objective of a calling party, comprising:

a recognizer that determines at least one phrase made by the calling party and outputs a second phrase;

a topic identifier that receives the second phrase and converts the second phrase to at least one of a word stem and a word class and generates a topic output; and

a maximum benefit router that receives the topic output and determines where to route the call in order to optimize at least one predetermined parameter.

15. The automated call routing system of claim 14, wherein the call can be one of a telephone call and electronic mail.

16. A method for automatically routing a telephone call using maximum benefit routing, comprising the steps of:

receiving a telephone call from a caller;

determining phrases from speech utterances by a caller;

inputting said determined phrases to a speech recognizer device;

converting said recognized determined phrases into at least one of word stems and word classes;

performing keyword lookup on the one of word stems and word classes;

generating a feature vector that contains the number of times the at least one word stems and word classes were found in the determined phrase;

performing analysis on the feature vector; and

outputting a posterior possibilities vector.

17. The method of claim 16, wherein the analysis is performed on the feature vector using one of a multinomial model, a generalized linear model and a support vector machine.

18. The method of claim 17, wherein the posterior possibilities vector is a vector of scores for topics, each score representing confidence that the determined phrase is related to a predetermined topic and vector size is the number of topics.

19. The method of claim 16, further comprising the steps of:

inputting the posterior possibilities vector and determining an expected benefit of routing the call to each of a predetermined destination; and

outputting a benefit sorted vector of destinations, benefits, and topic scores.

20. The method of claim 19, further comprising the step of:

determining whether to route the call to a top ranking destination or to reject the utterance if the topic score and/or benefit falls below a predetermined threshold.